Space Weather Forecast

Issued on Tuesday, 16 April 2024 at 01:28 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance G1 day 2, 3 & 4 (17-19 Apr). Moderate flares likely, slight chance of Strong flares.
Solar Activity: Moderate with several low level Moderate class flares in the past 24 hours, from AR3639 in the northeast and AR3634 in the northwest. There are ten sunspot regions currently visible on the disk. The two aforementioned spots are the largest and most magnetically complex, showing signs of growth. There are two further moderately complex sunspots in the southeast. All other spots are smaller and simple.
Two coronal mass ejections were observed, the first from a filament eruption in the northeast early on the 15th. The second is evident leaving the northwestern quadrant of the Sun later on the 15th Apr, though the exact source region is difficult to determine, further analysis is needed.
Solar Wind / Geomagnetic Activity: Solar winds speeds were slow-ambient. Density was below average becoming average after the possible arrival of a weak transient feature around 15/1730UTC. Interplanetary magnetic field (IMF) strength was weak becoming moderate after 15/1730UTC. The north-south component also only varying weakly though was briefly moderate after the transient arrival. Despite the transient resultant geomagnetic activity remained Quiet (Kp 1-2) with one Unsettled interval (Kp3) late in the period.
Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background with no Solar Radiation Storms occurring.

Four-Day Space Weather Forecast Summary
Solar Activity: Moderate solar activity is likely, with further Moderate class flares, these probably originating from spots in the northern hemisphere. There is a slight chance of activity becoming High should any isolated Strong class flares occur.
Solar Wind / Geomagnetic Activity: There are up to two coronal mass ejections with the potential for Earth-directed components. The first is from a joint common class flare and filament eruption on 14 Apr, which may give a glancing blow on 17 Apr. The second from a filament eruption on the 15th which may arrive late on the 17th or early on the 18th. Otherwise, no coronal hole fast winds are expected, with speeds likely background or perhaps slightly elevated.
Geomagnetic activity is expected to be generally Quiet to Unsettled through the 4 day period. There remains a chance of Active or G1/Minor storm periods on days 2 and 3 (17-18 Apr) from low confidence coronal mass ejection arrivals.
Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to remain at background with no Solar Radiation storms occurring.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Met Office

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	30	30	20
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	70	70	70	70
Very Active	R3 to R5 X	No	15	15	15	15

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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